17 DEC 1935

DEPARTMENT OF INDUSTRIES

BOMBAY PRESIDENCY

ANNUAL REPORT

1934-35

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BOMBAY
PRINTED AT THE GOVERNMENT CENTRAL PRESS
1935

Obtainable from the Superintendent, Government Printing and Stationery, Bombay
or through the High Commissioner for India, India House, Aldwych, London, W.C.2
or through any recognized Bookseller

gitized with financial assistance from th
Government of Maharashtra
on 20 July, 2017

No. I.C. 20/5244.

OFFICE OF THE DIRECTOR OF INDUSTRIES,
OLD CUSTOM HOUSE YARD :
Bombay, 1st July 1935.

From

P. B. ADVANI, ESQ., M.Sc.TECH., M.I.E., J.P.,
Director of Industries,
Bombay ;

To

THE SECRETARY TO GOVERNMENT,
General Department,
Bombay.

Subject.—Annual Report of the Department of Industries, Bombay.

Sir,

I have the honour to submit the Annual Report of the Department of Industries for the year 1934–35.

I have the honour to be,
Sir,
Your most obedient servant,

P. B. ADVANI,
Director of Industries.

Annual Report of the Department of Industries, Bombay Presidency, for the year 1934-35.

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CHAPTER I.

GENERAL INDUSTRIAL OUTLOOK DURING THE YEAR.

The trade depression continued during the year practically unabated. It is true there were some signs of recovery but these can hardly be held to be of a permanent nature. Commodity prices continued to rule low. The prices of wheat and rice registered a drop. There was not much change in the prices of bajri and jowari. Raw sugar also registered a drop in price but recovered towards the end of the year. There was some improvement in the price of oil seeds and cotton. On the whole, however, the agriculturist who is the backbone of the country realised less for his produce and paid more for his requirements of manufactured products such as cloth than in the previous year. Until there is a definite improvement in the economic condition of the agriculturist any real recovery in trade or industry can hardly be expected. Added to the reduced demand for manufactures owing to the continued low purchasing power of the agriculturist, the local industries had to contend with foreign competition specially that of Japan.

In spite of the above adverse conditions, however, some of the industries of this Presidency notably sugar and to some extent textile registered improvement during the year.

STATE OF SOME IMPORTANT INDUSTRIES.

2. **Cotton Textile Industry.**—The condition of the industry during the year except that of the industry in the City and Island of Bombay showed improvement. The total number of mills in the Presidency was one less than in the previous year. In the City of Bombay there were 3 less mills than in the previous year. Several mills both in Ahmedabad and Bombay worked on double shift and there was therefore a fair increase in production. Some 47 mills in Bombay were affected by the general strike which lasted from the 23rd of April to 20th of June. Up to the time of writing, annual reports for 1934 were received from only 43 mills. It is, therefore, not possible to give detailed analysis of the exact state of the industry. The 43 reports received, however, reveal the following position.

In the Bombay City and Island losses of Rs. 14·15 lakhs were shown by 8 mills. Gross profits of Rs. 35·50 lakhs were shown by 19 mills out of which only 8 mills could declare dividends.

In Ahmedabad a loss of Rs. 2·9 lakhs was shown by 2 mills. Gross profits of Rs. 11·57 lakhs were shown by 8 mills. Out of these 5 only were able to declare dividends. Generally annual reports of Ahmedabad mills are issued in the latter part of the year. It is, therefore, not possible to analyse them for the purposes of this report.

In Sholapur 2 mills showed profits of Rs. 4·65 lakhs and declared dividends. In Khandesh 2 mills showed Rs. 4·88 lakhs profit and dividends were declared. In Barsi 2 mills showed profits of Rs. 64,000 but no dividends were declared.

During the year 1934–35 the following rates of duty were in force :—

British.	Non-British.
25 per cent. *ad valorem* or 4⅜ as. per lb. whichever is higher.	50 per cent. *ad valorem* or 5¼ as. per lb. whichever is higher.

The following statistical tables covering cotton mills in the Bombay Presidency will be of interest :—

For the year ending 31st August.	Number of mills.	Number of spindles.	Number of looms.	Average number of hands employed.	Cotton consumed.	Paid-up capital
					Cwts.	Rs.
1932 ..	220	6,443,519	141,241	256,200	5,984,720	24,58,20,563
1933 ..	220	6,468,794	142,591	252,417	5,690,692	23,83,18,186
1934 ..	219	6,401,422	144,730	227,929	5,115,775	23,09,08,818
Percentage increase or decrease as compared to 1933.		—1·04	+1·5	—9·7	—10·1	

Production in and Imports of Yarn and Piece-goods into Bombay Presidency.

Year ending 31st March.	Yarn (in million pounds).			Piece-goods (in million yards).		
	Presidency production.	Imports into the Presidency.	Percentage of imports to production.	Presidency production.	Imports into the Presidency.	Percentage of imports to production.
1931–32	549	12·3	2·2	2,188	389	18·0
1932–33	559	17·6	3·2	2,266	638	28·2
1933–34	485	9·6	2·0	2,025	437	21·6
1934–35	480*	14·5	..	2,095*	499	..

* For eleven months.

3. **Woollen Mills.**—The woollen industry showed some signs of improvement during the year under review. Two mills which worked during the last year continued to work during the year 1934. A new mill which will be a proprietory concern is expected to commence operations at an early date. There was an increase of 40 per cent. in the quantity and 20 per cent. in the value of woollen goods produced in the local mills. Local production and imports were as under :—

Local production.

Year.	Production in lbs.	Value in rupees.
1933	1,472,885	26,43,744
1934	2,062,674	33,76,145

Imports into Bombay and Karachi.

Year.	Value in rupees
1932–33	164·6 lakhs.
1933–34	143·2 lakhs.
1934–35	228·7 lakhs.

Apart from the above imports by sea Bombay also imported a considerable quantity of woollen goods from Cawnpore and other important woollen manufacturing centres in India. On the whole the Bombay woollen industry cannot be said to be in a satisfactory condition on account of low prices and intense competition. The unsatisfactory condition of the woollen industry in India was investigated during the year by the Tariff Board appointed by the Government of India and it is understood that the Board's report has been submitted to the Government of India.

4. **Hosiery.**—The state of this industry continued to be depressed. Although there was a very slight increase in the total output of knitted goods manufactured locally there has been on the other side a progressive increase in the value of knitted goods imported. Owing to the very low prices of imported goods which prevailed, the increase in the quantity of imports was considerably greater than is indicated by the increase in the total value. The Woollen Hosiery manufacture in this Presidency has specially been affected.

The quantity of production and value of imported hosiery are detailed below :—

Local production.

Year.	Production in lbs.
1931–32	480,000
1932–33	456,000
1933–34	487,000

Imports of knitted goods, Bombay and Karachi.

Year.	Value in lakhs of rupees.
1931-32	20·5
1932-33	28·34
1933-34	30·84

5. **Silk Fabrics.**—The two large silk mills in the city suffered severely through intense Japanese competition which they have found very difficult to meet. The other small silk weaving factories were likewise affected by cheap imports. In general imported silk fabrics are now sold at prices which barely cover manufacturing costs of the local manufacturers.

6. **Gas Mantle Industry.**—The year under report continued to be a bad year for the gas mantle industry. The bad reputation for Indian mantles created by some small gas mantle factories that came into existence during the last two or three years has not entirely disappeared, hence the genuine well established manufacturers had a hard time to push their products in the markets.

7. **Chemical Industries.**—Both the factories manufacturing heavy chemicals worked at a loss during the year under report. The other factories coming under this head did fairly well during the year. The factory for the manufacture of Sulphuric Acid, Nitric Acid and Hydrochloric Acid which was under construction near Ahmedabad last year has commenced operation. A new development of this industry has taken place during the year under report. The Pioneer Magnesia Works at Kharaghoda has commenced on a small scale to reclaim Magnesium Sulphate as a by-product in the manufacture of Magnesium Chloride. Two chemical and pharmaceutical works have started operations in the Dharwar District. One of them situated at Gadag has put several pharmaceutical products of high quality on the market and is reported to have done well.

It was mentioned in paragraph 57 (6) in last year's report that a gentleman in Bombay had at the advice of the Industrial Chemist decided to put up a factory for the manufacture of Acetic Acid from Calcium Acetate. The plant was erected and the production of Acetic Acid was started at the end of 1934.

8. **Sugar Industry.**—During the year under review 5 factories manufacturing sugar direct from cane were working in the British Districts in addition to the two working in the Indian States of this Presidency. The total production of the 5 factories in the British Districts was 19,169 tons during the financial year 1934-35. In addition to the above factories, 7 Khandsari Sugar factories were also working in this Presidency. The figures of production of these factories are not available.

In the year 1933–34 the imports of sugar into Bombay and Karachi were 158,000 tons valued at about Rs. 1·6 crores. The corresponding figures for the year under report are 133,000 tons valued at about Rs. 1·25 crores.

9. **Match Industry.**—During the year under review 11 match factories worked practically throughout the year, the 12th one having commenced operations from the 1st of March 1935. Two more factories are in the course of erection and it is hoped that they will soon commence work.

The total production of the 12 match factories referred to above during the year 1934–35 was about 3,063,891 gross match boxes. Imports of matches into Bombay Presidency are quite negligible and whatever little there are, are fancy matches for advertisement purposes.

10. **Paper Industry.**—The two paper mills one in Poona and the other in Bombay belonging to the Deccan Paper Mills Co. Ltd. worked throughout the year. One paper mill outside this group situated in Bombay was entirely closed throughout the year. The production of paper decreased from 3,163 tons in 1933 to 3,069 in 1934. The value however increased from Rs. 10·95 lakhs in 1933 to Rs. 11 lakhs in 1934. Considering the general trade depression, the paper industry of the Presidency on the whole did fairly well.

A new paper mill which was under construction at Ahmedabad near Barejadi has recently commenced to manufacture.

11. **Glass Industry.**—Four glass factories were operating at the commencement of the year under report. Two of them, however, closed down later, one of them being the glass bangle factory at Kandivli. One glass factory is under construction in Bombay and it is reported that it will begin to operate soon. Due to the keen Japanese competition the Industry did not do well during the year.

12. **Oil Mills.**—There was no change in the number of oil mills registered under the Indian Companies Act during the year under review. It is reported that the industry as a whole did fairly well during the year. The oil refining plant reported in the last year's report has started operations and is reported to be working satisfactorily. The erection of the oil extraction plant near Kalyan is complete and trials are being taken. It is reported that the plant is capable of being worked successfully.

13. **Vegetable Ghee.**—There are two factories producing vegetable ghee in the Presidency. One is owned and controlled by a well known British firm with international interests and the other by Messrs. Forbes

Forbes Campbell & Co. Ltd., Bombay. The imports of vegetable ghee into India and Bombay during the last four years were as follows :—

Year	India		Bombay		Sind	
	Tons	Rs. in lakhs	Tons	Rs. in lakhs	Tons	Rs. in lakhs
1931-32	5,842	42·41	2,008	14·97	882	5·55
1932-33 ..	1,833	13·45	935	7·32	193	1·12
1933-34	132	1·03	65	0·48	4	0·083
1934-35	238	1·35	103	0·48	Not available.	

14. **Soap Industry.**—So far as this industry is concerned it is very difficult to keep a record of all the soap factories in this Presidency, as most of them do not come under the Indian Factories Act. It is, however, estimated that there are about 60 big and small soap factories in this Presidency. This industry along with others has felt severe competition from Japan. The small factories, especially, did not do well during the year. Some three or four factories of established reputation are, however, reported to have done well during the year.

Up to the year 1933-34 Bombay used to export nearly 2 lakhs worth of soap to foreign countries. In the year under review however no exports have been registered. This might be due perhaps to the inroads which Japan is making into the nooks and corners of the world by its cheap articles.

The outstanding feature of the industry during the year under review was the establishment by the well known British firm, Messrs. Lever Bros. of a big soap factory equipped with the most up-to-date plant at Sewri, Bombay. The raw material for their soap will be the Indian sweet oils. It is understood that they are going to manufacture many of their well known brands in India. The factory has started work and their products are now to be seen in the market.

15. **Engineering Industry.**—During the year 1934-35 the number of Engineering works remained the same as in the previous year. There was no new floatation or closing down of any factory. The total number of engineering factories is now about 147 of which 35 are registered companies. These are engineering and constructional works, electrical and automobile repair works, metal foundries, iron and steel fabrication works, metal refining works and machine shops. The engineering factories do more or less repair work, make textile machine spare parts, flour grinding mills etc. There was practically no improvement in the present depressed condition of this industry.

16. **Refining of Alloys.**—The factory established in Bombay recently has made considerable progress in its output and has added to the list of refined metals. Railways, engineering, printing and manufacturing works have increased their demands for refined non-ferrous metal, sending old metal to be refined to a particular analysis.

17. **Wire and Nails.**—No further progress was made in the number of wire and wire nail factories during the year. The existing factories have had to meet keen competition from the imported article.

18. **Aluminium Industry.**—The trade in hollow ware has been very bad and prices have been poor and hardly remunerative. This has been more or less due to the cut throat competition amongst the Indian and foreign group of factories.

19. **Gold Thread Industry.**—The factors which adversely affected this industry during the last year continued during the year under review. The almost prohibitive prices of gold and silver, the heavy price fluctuation of the same coupled with the continued trade depression have made progress in the industry very difficult. A number of cottage factories had to be partially or wholly stopped. It is pleasing to note, however, that the quality of locally manufactured gold thread continued to be such as to enable it to hold its own in the local and other markets of India against imported gold thread.

20. **Cigarette Industry.**—During the year under review 2 factories were closed and one new factory was started. The total number of factories in the Presidency is now 10. Some of the existing factories increased their productive capacity during the year. It is considered that the total output capacity of the cigarette factories in the Presidency is far from sufficient for this Presidency's present or future consumption.

The imports of cigarettes into Bombay Presidency and Sind have shown a progressive decline as is shown in the following statement :—

1930–31	.. Rs. 50 lakhs.
1931–32	.. Rs. 22·74 lakhs.
1932–33	.. Rs. 16·69 lakhs.
1933–34	.. Rs. 9·50 lakhs.

This decline may be due to several factors such as the general economic depression, and an increase in the supplies of cigarettes made by cigarette factories in this Presidency and other parts of India.

21. **Carbon paper, Typewriter ribbons and stamping pads.**—There is only one factory of this kind in this Presidency and it is reported to have done well during the year under report.

22. **Confectionery Industries.**—There are 6 confectionery (including chocolates) manufacturing factories in the Presidency and 4 biscuit making establishments. All these establishments are reported to have

just made both ends meet during the year under report. The manufacturers of confectionery are finding it difficult to stand against Japanese competition.

NEW ENTERPRISES.

23. During the year under review several new factories were established in the Presidency. Some of these are establishments for the manufacture of electric torch light casing, sewing threads on wooden spools and paper tubes and cones, sheet metal unbreakable black boards suitable for schools, office duplicators, tin boxes, show cards for advertisement purposes, soap, steel rolling and rerolling, fire works, woollen fabrics and yarn, canvas and rubber shoes, carpets, vegetable oil and coal briquettes etc. Where necessary, the names of the factories were brought to the notice of the Directors of Industries in other provinces and other Governments and commercial bodies likely to be interested. Some of the new industries are reviewed here below.

24. **Rerolling steel mills.**—Two rerolling steel mills have started operations at Wadala, Bombay, using rail scraps and billets for rolling flat, square and round section merchant bars of small sections. There are all the necessary heating furnaces and rolling and cutting machinery installed in the factories. The works are of a small capacity. Establishments of small rolling mills are very necessary for supplies of small section iron which is required for manufacturing different kinds of metal ware and hardware now being imported.

25. **Manufacture of jacquard harnesses etc.**—A famous English firm of jacquard manufacturers have opened a factory at Parel, Bombay, for the manufacture of all types of jacquard harnesses etc. The work turned out is very good.

26. **Manufacture of canvas shoes.**—Another factory has been added to those already existing in Bombay for making canvas shoes with rubber sole and rubber shoes. This is a small factory and has recently started operations.

27. **Artificial silk weaving.**—One of the leading artificial silk manufacturers in England has now started a fairly large weaving mill for making artificial silk fabrics. The weaving factory is situated in the building of the old Bombay Woollen Mills.

28. **Metal Printing.**—A firm has started operations in Bombay for printing on metal sheets, tin boxes etc. This will assist the development of canning, confectionery and other industries. Besides doing printing on metal this firm manufactures all kinds of tin boxes, placards signs etc. for advertisement purposes.

29. **Manufacture of Rivets etc.**—An enterprising local firm manufacturing hollow ware has started another side line in its factory for making iron rivets etc. The work turned out is very good. The firm

has to contend with keen competition from the cheaper Japan and Belgian imports.

30. **Centrifugal Pumps.**—There has been an addition of two factories to the present number of factories making centrifugal pumps. One is in Surat and the other is in Bombay. All parts of the pumps are made locally. The design, workmanship and construction are good.

31. **Oil Engine manufacture.**—There has been an addition of two Engineering works making a total of 3 which make crude oil engines. One of these is situated at Surat and the other at Navsari. Vertical crude oil engines of 5, 6 and 10 B. H. P. are at present manufactured. With the exception of the crank shaft and bearings which are imported all other parts are made locally. The design and workmanship of the engines are good. It is pleasing to note that this line of manufacture is being developed in the Presidency.

32. **Manufacture of tricycles, perambulators.**—Another factory was established in Bombay for the manufacture of children's tricycles, perambulators and similar other articles. Work turned out is good. The local factories find considerable competition from similar Japanese imports and prices realised have been hardly remunerative. Materials used in the manufacture of the tricycles and perambulators are to a great extent indigenous.

33. **Electroplating.**—A factory for Chromium plating equipped with the latest type of machinery and plating bath was established during this year. Work done is considered good. The establishment of such factories would assist in the manufacture of small metalware and hardware articles.

34. **Manufacture of metal crockery and spoons, etc.**—A firm in Ratnagiri has patented a metal cup and saucer which is now being manufactured. Irrespective of the temperature of the liquid the cups and saucers do not feel warm to the touch ; the work turned out is good. A small factory in Bombay is now manufacturing spoons and forks on a limited scale with hand worked machinery. The plating of the forks and spoons is done in another factory. The work turned out is good.

35. **Dry Cell manufacture.**—Dry cells for electric torchlights are now manufactured in this Presidency in very small scale establishments. The annual value of imports of dry cells into the Bombay Presidency is considerable. There appears to be ample scope for the establishment of a factory equipped with automatic machinery for the manufacture of dry cells.

Imports of dry cells into Bombay Presidency and Sind.

Year.	Value in Rupees.
1932–33	45,999
1933–34	2,86,223
1934–35	1,46,809 (Bombay)

36. **Charcoal Briquettes.**—There are now three small factories making briquettes from charcoal with the use of binding agents. Their briquettes have been favourably commented upon by household users and are economical in consumption.

37. **Pottery and Tiles Factory.**—A much needed new industry, a pottery works for sanitary wares, is under installation and it is expected to start work at a very early date in Bombay. This factory will make all kinds of modern sanitary wares which have a very large market locally and elsewhere in India. The factory is under the management of a well known and experienced pottery expert. It is well laid out and equipped with the latest type of clay machinery and kilns.

38. **Manufacture of Bakelite.**—There was an addition of two factories which now make bakelite stationery fittings, toilet accessories, drug packing boxes and unbreakable crockery. The workmanship, design and finish are of a very high order and compare very favourably with similar imported articles.

39. **Manufacture of small motors.**—A welcome new enterprise for Bombay in the Electrical line is the manufacture of small sizes of electric motors. These are now being manufactured on a limited scale at a local factory which has already established for itself a good reputation for making good A. C. ceiling fans and electric water heaters.

40. **Office Duplicators.**—A local firm dealing in typewriter requisites, is now making small office type Duplicators in Bombay. All parts are made locally. The Duplicator is well made and works satisfactorily.

41. **Sheet metal school Blackboards.**—A factory in the Presidency which makes all kinds of enamelled sign boards and unbreakable school boy slates has now taken to manufacturing unbreakable school blackboards. A sample board was tested by this Department and it was found to stand wear very well.

42. **Metal Spraying.**—This new industry owes its introduction to the foresight of one of the leading Electric welding firms in Bombay. With the use of the metal spraying machine any kind of non-ferrous and other metals can be easily sprayed to show a different surface or worn out metal surface or coating renewed ; metal can also be sprayed on to paper or cardboard. The spraying of non-ferrous metal enables the preservation of metallic surface from the action of water or corrosive atmospheric conditions, besides altering the appearance of a base metal to look like the richer metal. The work is very simple and can be carried out with the help of the average Indian labour.

43. **Manufacture of sewing thread.**—A well equipped factory solely for the manufacture of sewing thread commenced operations during the latter part of 1934. The factory makes all kinds of sewing thread wound on wooden reels or paper tubes and in any length required. The

factory has the latest types of the necessary machinery and is under the supervision of its thoroughly practical proprietor.

44. **Manufacture of Pocket Torchlight casing.**—A local firm dealing in pocket batteries has put up a factory in Bombay to manufacture Pocket torchlight casings. The factory is well equipped with all the necessary sheet metal and other power-driven automatic machinery. A large proportion of the raw materials for making the casings is indigenous.

NEW FLOTATIONS.

45. Despite the fact that there was general trade slump during the year under review many new companies were floated. These are : 2 cement companies with a total authorised capital of Rs. 50 lakhs, 2 mining and quarrying companies with a total authorised capital of Rs. 24 lakhs, 13 cinema producing companies with a total authorised capital of Rs. 51·4 lakhs, 1 rope factory with an authorised capital of Rs. 5 lakhs, 4 petroleum companies with total authorised capital of Rs. 160 lakhs, 10 printing and publishing presses with total authorised capital of Rs. 4·65 lakhs, 4 cotton mills with total authorised capital of Rs. 50 lakhs, 1 sugar factory with authorised capital of Rs. 5 lakhs, 1 match concern with authorised capital of Rs. 1·25 lakhs, 1 gold thread company with authorised capital of Rs. 50,000, 4 electric undertakings with total authorised capital of Rs. 10·5 lakhs, 1 bakelite factory with authorised capital of Rs. 1 lakh, 1 factory for manufacture of mill and gin stores with authorised capital of Rs. 5 lakhs, 1 Rubber goods factory with a capital of Rs. 1·25 lakhs, 1 leather goods factory with a capital of Rs. 1·50 lakhs, 1 tile and brick factory with a capital of Rs. 2·5 lakhs and one toy manufacturing company with a capital of Rs. 2·5 lakhs, making a total authorised capital of Rs. 373·5 lakhs.

During the year under review 7 cotton mills, 3 cotton gins and presses, 1 cement factory, 1 tannery, 1 match factory, 3 mining establishments, 3 motor works with total paid-up capital of Rs. 77·7 lakhs went into liquidation.

CHAPTER II.

WORK OF THE DEPARTMENT—ORGANISED INDUSTRIES.

46. In this Chapter a brief description is given of the various activities of the Department in the interest of organised industries.

There are many small scale organised industries in this Presidency, not to speak of cottage industries, which have in use technical processes and appliances capable of considerable improvements which when carried out will enable the factories in question to provide better quality and larger quantities of finished products for the same labour and cost. This kind of work naturally involves a careful study of the industry concerned and

a considerable amount of experimental work. Successful endeavours in this direction would enable the industries concerned to compete better with imports and would also increase production in the country. During the year under review work in connection with Gold Thread Industry and Cashewnut Shell Oil was continued.

In a similar manner, there are certain small scale industries which could be established in the province and which at present either do not exist or exist on a restricted scale. In order that such industries may be established, some practical experimental work in connection therewith is necessary. During the year under report the Department carried out work in connection with Peppermint Oil, Alumina and Aluminium Sulphates, Lemon Oil, Mango Pulp, Magnetite Sand, Nicotine, Calcium Citrate, Blumea Oil, and Potash from Ashes.

PRACTICAL INVESTIGATIONS, EXPERIMENTS AND DEMONSTRATION WORK TO IMPROVE THE QUALITY AND QUANTITY OF PRODUCTS OF EXISTING INDUSTRIES.

(*a*) THE REAL GOLD THREAD INDUSTRY.

47. The machine for spinning the silver thread mentioned in last year's report was designed and completed by the Industrial Engineer. Patent for the machine has been applied for. The machine was demonstrated for about two months at the Victoria Jubilee Technical Institute, Bombay. The demonstration was well attended by gold thread manufacturers of Bombay. Merchants brought their own silver and yarn and made the thread as per their requirements, and were satisfied with the quality of work and the low consumption and wastage of silver. The demonstration was removed from Bombay to Surat where the work is now being continued. Local firms are arranging to manufacture similar type of spinning machine of 100 spindles for their use.

Melting of silver and use of cleaning chemicals were shown to machine and hand powtawallas by the Industrial Engineer and instructions in gilding of copper wire and use of chemicals were also given to manufacturers of imitation wire and thread.

The use of annealing chamber constructed by the Industrial Engineer for electrically heating silver wire has now increased and the local manufacturers appreciate its use.

Gold thread machinery manufacturers at Surat were given technical advice and other assistance which helped them to improve the construction of machinery. The workmanship and designs of machinery now turned out by the local firms are of a high order.

The continued and systematic assistance given by the Department to the gold thread industry has helped the cottage manufacturers to improve the quality of gold thread and other articles considerably. The local

manufacturers are able to sell their various qualities of gold thread and other products in competition with imported gold thread and gold thread made elsewhere in India in factories.

Arrangement was made during the year with Messrs. The Surat Engineering Co., Ltd., to construct the spinning machine referred to above on payment of a small royalty to Government.

(*b*) Cashewnut Shell Oil.

48. The work on this oil was continued during the year under report. Cashewnut shell oil was extracted from the shells of raw nuts as well as from the discarded shells of the roasted nuts after the removal of the kernels. The physical and chemical properties of these oils have been studied under various conditions of temperature. Samples of these oils have been sent to a company in the United States which has specialised in the manufacture of cashewnut shell oil products for further tests and trials and for finding their commercial value. The report of the firm is awaited.

PRACTICAL INVESTIGATIONS, EXPERIMENTS AND DEMONSTRATIONS FOR POSSIBLE NEW INDUSTRIES.

(*a*) Peppermint Oil.

49. Further work on the problem was continued during the year. Peppermint plants were planted in gardens in the East Khandesh District and in the Dharwar District to find out whether the plants would thrive in those areas. It is reported that the plants are doing well. A demonstration party for the distillation of oil will be sent in due course to find out whether the quality of the oil obtained is the same as that obtained from plants at Dahanu.

(*b*) Alumina and Aluminium Sulphates.

50. This investigation was completed during the year. It has been found that Bauxite available in this Presidency especially that found on Tungar Hill in the Thana District is suitable for the production of Alumina and pure Aluminium Sulphates. The results of the investigation will be included in the Bulletin on the possibilities of Aluminium production in the Bombay Presidency to be published shortly by the Department.

(*c*) Lemon Oil.

51. The work on this oil was continued during the year under report. A demonstration party has been organised and will be sent to the lemon growing areas during the next lemon season. Samples of oil prepared on a bigger scale than the laboratory scale will be sent for evaluation to the United Kingdom, Germany and France. If the value of the oil works out to be higher than the cost of production of the oil, efforts will be made for the local extraction of lemon oil on commercial scale.

(*d*) Mango Pulp.

52. Due to lack of funds it was not possible to carry out further investigation work on a bigger scale than the laboratory scale on this problem. Work on laboratory scale was continued during the year under report and samples of mango pulp were prepared. It seems that several other provinces have taken interest in the proposition and enquiries were received from Agricultural Departments of other provinces where mango is available in large quantities. Details of the process worked out by the Industrial Chemist were supplied to enquirers. As soon as funds are available a pilot plant will be erected to work out the cost of production and economics of the industry.

(*e*) Magnetite Sand from Ratnagiri.

53. The possibility of exploitation of magnetite sand available on the coast near Ratnagiri was further investigated. It has been found that the sand might prove to be a good source not only of magnetite but of ilmenite also. Samples of the sand were sent to the United Kingdom for trial and evaluation. The report received indicated that further work was necessary in order to work out a process for the extraction of marketable products. Further work on the problem is in progress.

(*f*) Nicotine.

54. Nicotine preparations have found important applications as insecticides. The Professor of Entomology of the College of Agriculture, Poona, requested the Industrial Chemist of this Department to investigate the possibilities of producing Nicotine insecticides in this Presidency. Investigation was undertaken and samples of insecticides similar to those imported at present were prepared from samples of tobacco grown in the various districts of the Presidency. Samples of insecticides were sent for trial to the Entomologist who reported that the insecticides produced from the tobacco grown in the Presidency had almost the same killing power at higher concentration as that of the imported preparations. During the course of the investigation it was found that it is possible to prepare a solid product which could be diluted with water and used as an insecticide.

The possibility of the production of the insecticide from waste tobacco and tobacco stems discarded by one of the cigarette factories in the Bombay Suburban area was also investigated. It was found that it is possible to utilise the product for the production of Nicotine insecticide. Further work on the problem is in progress.

(*g*) Calcium Citrate.

55. During some months of the year the price of lemons or limes in the Presidency goes down so much that the growers do not realise even the

bare cost of picking and packing. In order to remedy this evil this Department had undertaken an investigation for the production of Calcium Citrate from the juice of lemons available in the Presidency. Several samples of Calcium Citrate have been prepared from juice extracted from limes at Utran in the East Khandesh District. The work done so far is encouraging. Difficulty, however, is experienced in obtaining suitable lime (quick lime) for this work. The suitability of different samples of lime for the production of Calcium Citrate of marketable quality is being studied.

(*h*) Blumea or Kalar (Killar) Oil.

56. Blumea Eriantha is a common weed of the Presidency. It is possible to extract essential oil from this weed which might have good commercial value. Investigation was therefore undertaken for the extraction of oil from this weed. Oil was extracted from the weed available in Bombay and its chemical and physical constants were determined. A sample of the oil has been sent to the Imperial Institute, London, for further test and for the determination of its commercial value.

(*i*) Potash from Ashes.

57. Ordinary ashes from the kitchens of Indian households are a potential source of potash. During the war time large quantities of potash from ashes were prepared on cottage industry basis in the United States and other countries. The price of potash prevailing then was such as to allow a reasonable amount of profit if the process was carried out on a small scale. The possibility of producing potash and potash salts from ashes is being investigated. The results so far obtained are encouraging. It is proposed to carry out work on a semi-cottage industry scale to work out the economics of the process.

PREPARATION OF ESTIMATES.

58. During the year under review summaries of estimates prepared by this Department were supplied in response to several enquiries received in this office. Detailed estimates were also supplied to those who showed genuine interest in the schemes after perusal of the summaries supplied to them.

NEW ESTIMATES.

59. A detailed report with an estimate on the possibilities of manufacturing expanded metal in Bombay was supplied to a representative of a local firm who wanted to establish a factory for the manufacture of expanded metal ware in this Presidency. Information regarding imports of expanded metal and of manufacturers, if any, was also collected and passed on to the firm.

60. **Small Aerograph Silk and Cotton Cloth Printing Factory.**—An estimate has been prepared for a small silk and cotton cloth printing factory for an average output of 200 sarees per month. This is for industrialists with a small capital :—

	Rs.
Block capital	1,600
Working capital	400
	2,000

61. **Small Dyeing Factory.**—An estimate for a small dyeing factory for dyeing 50 lbs. of cotton yarn 60's, 4 lbs. of silk yarn 20/22 deniers and 10 lbs. of silk cloth per day has been prepared. This is for the benefit of small dyers :—

	Rs.
Block capital	600
Working capital	1,600
	2,200

62. **Manufacture of Penholders.**—An estimate for the manufacture of 50 gross penholders per day of 10 hours has been prepared. The total investment for a small factory is as follows :—

	Rs.
Block capital	9,700
Working capital	2,000
	11,700

SCOPE FOR NEW INDUSTRIES.

63. **Steel Furniture.**—There is a fairly large demand in the local market for chromium plated steel furniture. Enterprising investors should consider the establishment of small and medium size works for making plated steel furniture from mild steel and/or steel tubes.

64. **Manufacture of Metal Screws.**—Relatively only a small quantity of metal screws is now being made in India. Considerable quantities of screws are at present imported into the country. The establishment of medium size factories would supply the requirements of a number of small machine shops and constructional works all of which require metal screws and have to import them.

65. **Manufacture of High Pressure Kerosine Oil Lamps and Stoves.**—Bombay in particular and India in general consume a considerable quantity of imported lamps and stoves. Although a few factories make lamps by manual labour there is scope for the establishment of a factory equipped with power driven machinery for the manufacture of lamps and stoves.

Estimates of the above industries can be made available to those genuinely interested.

SOLVING OF PRACTICAL DIFFICULTIES IN THE PROCESSES OF MANUFACTURE AND RENDERING OF TECHNICAL ADVICE.

66. Apart from the work of improvements in technical processes in the making of gold thread, peppermint oil and soap, etc., to which a reference is made elsewhere, a number of requests for assistance in the solution of practical difficulties was dealt with. A few of these are briefly summarised hereunder :—

(1) The proprietor of a newly-started rolling mill in Bombay wanted to increase the output of his rolling mill. He was advised to change his steam drives to electric drives and details and arrangements of variable speed motors and drives were given to him.

(2) A factory making bakelite articles was having trouble with heating of the moulds. The necessary advice and arrangement of suitable regulating resistance were given.

(3) A factory drawing copper wire was having difficulties with the oxidising of the drawn wire. A suitable arrangement for an annealing pot was shown to the proprietor.

(4) A party having a small grinding mill had difficulties with the working of his plant. The party was advised and the difficulty overcome.

(5) A machine shop had difficulties with casting small chilled rolls. The necessary advice and details of moulds were supplied to the manager.

(6) A small factory-owner wanted to increase the hardness of the steel parts of his machine and tempering of silver wire flattening rolls. Full details of Nitriding arrangement and of a muffle type of heating furnace were given to the party.

(7) The Works Manager of a factory producing heavy chemicals consulted the Department as regards the possibility of producing some by-products at his works. It was suggested to him that the production of Potassium Chloride was likely to turn out to be a profitable enterprise. The firm in question got interested in the proposition and asked for details as regards imports, mode of packing, quotations, etc., regarding the commodity. Detailed information on all the points was supplied and the same has been appreciated by the firm in question.

(8) A gentleman from Bombay sought the advice of this Department in the matter of reclaiming silver from photographic fixing baths. A detailed process for such reclamation was explained to him.

(9) A coffee producing firm in the Presidency found that the coffee produced by it became stale and rancid in a far shorter period than the other brands of coffee on the market. The question was investigated and it was found that the defect was in connection with roasting and cooling.

The firm was advised to use proper temperature and cooling time, and to employ a chemist to carry out these operations scientifically and carefully.

(10) A gentleman in Bombay interested in the distillation of crude oil for the production of fuel oil and lubricating oil experienced some difficulties in distillation. On an investigation of the matter it was found that he was using stills which were out of proportion when compared to the arrangement for heating ; and in many ways the entire arrangement was faulty. He was advised to use proper type of horizontal stills and preferably pipe stills. He was also supplied with specifications of such stills.

GENERAL ASSISTANCE TO INDUSTRIES.

67. A number of new concerns came into existence during the year. Many of them were visited by a member of the staff of this Department. The concerns were given when required such advice as was necessary. They were also recommended to the several purchasing authorities in the country. In some cases the question of Railway freight, customs duty and cheap raw materials, etc. was taken up on behalf of the factories with the authorities concerned. Some examples of this kind of work are reviewed below :—

(1) References were made in last year's report about the assistance rendered to (*a*) shuttle manufacturing industry, (*b*) the healds and reeds industry and (*c*) vegetable oil industry by solvent process using petrol as a solvent in putting up their cases to the Government of Bombay for recommendations to the Government of India in the matter of lower customs duties on raw materials and remission of duty on petrol respectively. The recommendations of the Tariff Board on the shuttle industry, to whom the case was forwarded by Government for enquiry, were submitted by the Board to the Government of India. The report of the Board has not so far been published.

The Tariff Board who had investigated the claim for lower customs duty in the case of the healds and reeds industry submitted their recommendations to the Government of India who rejected the application of the firm.

Similarly the request for remission of duty on petrol used as a solvent in the case of the vegetable oil industry was rejected by the Government of India. Failing to secure remission of duty on petrol, the Company is contemplating the use of benzine in place of petrol and has sent an application for remission of duty on benzine which was recommended by the Department of Industries to the Government of Bombay who have forwarded the same for the favourable consideration of the Government of India.

(2) It has been stated in a previous paragraph that a factory was established in Bombay for the manufacture of sewing thread on wooden

spools etc. This and another factory which is situated in Ahmedabad applied for reduction of the import duty levied on empty wooden spools used in connection with the sewing thread industry. The matter was investigated by the Department and the case of the industry was submitted to the Government of Bombay who forwarded the same to the Government of India for their consideration.

(3) The application of the factory making iron rivets for duty-free iron bars, has been forwarded to the Government of India for favourable consideration ; similar concessions are given to the nail manufacturing and wire drawing factories in the Bombay Presidency.

(4) The aluminium hollow-ware industry has been suffering from very keen internal competition, with the result that the prices of aluminium hollow-ware are hardly remunerative. An effort was made in 1931 by the different foreign and Indian owned factories to form a central marketing agency which fell through on account of the percentage of manufacturing quotas. Efforts were made during 1934 by the Department to encourage the formation of a Marketing Association on similar lines as the Cement Marketing Association. The preliminary meetings were held in the office of the Director of Industries. A tentative agreement was reached ; subsequently, however, differences arose between some of the parties. It is regretted that the extreme divergence of views has postponed for the time being the formation of a marketing organisation for aluminium hollow-ware.

(5) It was brought to the notice of this Department that one of the Railways in the Presidency was considering the question of re-classifying silica sand, used in the manufacture of glass, and thereby enhance the freight rate on the material. This Department took up the matter and put before the Railway authorities the facts and figures pertaining to the glass industry and requested them to re-consider their proposal and not to put the proposed enhancement in the freight rate for silica sand into force. The Railway authorities re-considered the matter and dropped the proposal to classify silica sand for a higher rate.

COMMERCIAL AND INDUSTRIAL INTELLIGENCE.

68. This branch of the Department continued to be both popular and useful.

As usual enquiries from abroad for opening commercial relationships with Indian firms were transferred to the Director-General of Commercial Intelligence and Statistics, Calcutta. Enquiries from Indian firms for opening trade relationships with British firms were transferred to H. M. Trade Cmmissioner, Bombay.

Enquiries received and dealt with in this office may be divided into the following groups :—

(*a*) Statistical, i.e., asking for figures of imports and exports of raw materials as well as finished products.

(*b*) Names of dealers in and sources of raw materials.
(*c*) Names of Indian manufacturers of various articles.
(*d*) Enquiries covering standing etc. of firms.
(*e*) Miscellaneous.

In the year under report under groups (*a*), (*b*), (*c*) and (*e*) 381 enquiries were received and answered as against 331 in the year 1933–34. As usual, enquiries received from outside this province were passed on to the Directors of Industries of the provinces concerned for disposal with the necessary information where readily available.

Under group (*d*) 12 enquiries as against 22 in 1933–34 and 26 in 1932–33 were received and dealt with for the supply of information regarding the financial standing and particulars of firms etc. Of these, 8 were from the Director General of Commercial Intelligence and Statistics, Calcutta, 3 from Stores Purchase Officer, U.P., Cawnpore, and 1 from Indian Stores Department, Bombay Circle.

STATE-AID TO INDUSTRIES.

69. The question of State-Aid to Industries was discussed at the Fifth Industries Conference called by the Government of India in 1933. The Conference appointed a sub-committee whose report was discussed and approved by the Conference. It was generally agreed that in the case of small industries Government should continue to advance direct loans up to a maximum of Rs. 10,000 in each case. Government of Bombay were pleased to accept this view and brought the matter before the July Session of the Legislative Council held in Poona in 1934 by moving a token grant of Rs. 10 under " Loans and Advances by Provincial Governments ". The Legislative Council made this token grant. The Department had previously submitted to Government draft rules for the grant of financial aid. These rules were under the consideration of Government at the close of the year.

70. During the year under report 4 applications were received for financial aid. As, however, the rules referred to above were under the consideration of Government, the applications could not be disposed of. At the time of writing Government have been pleased to finally adopt the rules and these have now been published for the information of the public.

MINES AND MINERALS.

71. The Department collected during the year the necessary statistics pertaining to mines and minerals from the various District Magistrates and the Secretaries to the Agents to the Governor-General and a consolidated return of the same was submitted to Government and the Director, Geological Survey of India. The position revealed by these statistics was as follows :—

During the year prospecting licenses were granted or renewed for natural petroleum including natural gas, bauxite and manganese ore.

The only mineral of importance raised during the year ending 31st December 1934 from mines exempted from the operations of the Indian Mines Act, 1923, was Fuller's earth. 23,338 maunds of this earth valued at Rs. 17,503-8-0 were raised from Met-Khan Mine in the Hyderabad (Sind) District.

Owing to a big slump in manganese none of the manganese mines in this Presidency worked during the year ending 1934.

The Department dealt with a number of enquiries received from the public in connection with minerals, places of their occurrence, firms dealing in them, etc.

72. (*a*) A gentleman from Malvan Taluka sought the advice of this Department in order to find a market for some mineral which he thought was graphite. The matter was investigated and it was found that the material was not graphite. He was, however, told that there was a possibility of finding a market provided it was available in large quantities.

(*b*) A gentleman from London approached this Department for the services of Dr. Patel for estimating the quantity of bauxite in Kolhapur State in connection with the proposed hydro-electric and aluminium development by a British Syndicate in that State. Government orders were obtained in the matter and Dr. Patel was deputed. A report as to the quantity and quality of bauxite available in that area was submitted to the party in question.

(*c*) This Department has been conducting research work on the suitability of Indian bauxite for the production of alumina and aluminium sulphate for the last three years. In this connection as anticipated by Dr. Fox of the Geological Survey of India, Dr. Patel of this Department discovered a good quality bauxite deposit on the Tungar Hill in the Thana District. A gentleman from Bombay interested in bauxite approached this Department as to the availability of bauxite in the vicinity of Bombay. He was referred to the dicovery of bauxite on the Tungar Hill by this Department. He secured a prospecting license for the area and carried out prospecting operations under the guidance of this Department. The prospecting operations have revealed that there is an adequate quantity of bauxite of good quality available on the Tungar Hill suitable for the manufacture of metallic aluminium and its salts.

73. In last year's annual report a mention was made about the discovery by this Department of natural gas at Hajad in the Ankleshwar Taluka in the Broach and Panch Mahals Districts. It was also mentioned that a prominent businessman in Bombay had taken prospecting license for natural gas both at Ghogha and at Hajad. The gentleman consulted the Department from time to time. At his request Dr. Patel visited Ghogha and assisted in the selection of the proper sites for putting in prospecting bores.

It will be seen from the above that due to the work carried out by this Department two important developments have taken place in the Presidency—one is the prospecting operations at Tungar Hill and the other the prospecting operations at Ghogha and at Hajad.

CHAPTER III.

WORK OF THE DEPARTMENT—COTTAGE INDUSTRIES.

74. **Hand Weaving Industry.**—The Department continued its propaganda of helping and advancing the hand weaving industry which is the premier cottage industry of the Presidency by means of its Weaving Schools and Demonstrations. Similarly Dyers and Calico Printers as well as weavers and others were helped in adopting improved and economic methods in dyeing and printing through Dyeing Demonstrations.

The Department, during the year under review, maintained seven weaving schools for *bona-fide* weavers, two weaving schools for agriculturists, ten cotton weaving demonstrations, two wool weaving demonstrations, one cottage sizing set demonstration, two dyeing and printing demonstrations and one Central Hand Weaving Institute for fulfilling the above objects.

75. **Weaving Schools for bona-fide weavers.**—During the year under review there were seven weaving schools for *bona-fide* weavers under the control of the Department. All the schools as usual imparted theoretical instructions and practical training in hand weaving by modern methods and improved appliances. They were conducted at the following centres ; the number of flyshuttle looms introduced by them is mentioned against each :—

Division.	Place.	District.	Number of Flyshuttle looms introduced
Southern Division ..	Lakkundi ..	Dharwar ..	10
Do. ..	Ilkal ..	Bijapur ..	15
Central Division ..	Dharangaon ..	East Khandesh ..	45
Do. ..	Bhingar ..	Ahmednagar ..	51
Do. ..	Sinnar ..	Nasik ..	20
Northern Division ..	Abrama ..	Surat ..	7
Do. ..	Chaloda ..	Ahmedabad ..	13
Sind ..	Hala ..	Hyderabad ..	55
Do. ..	Pir-jo-Goth ..	Sukkur ..	92

At the request of the local weavers and leaders, the Weaving Schools at Dharangaon, Bhingar and Hala were continued there during the year. The school at Lakkundi was closed and transferred to Ilkal in January 1935 and the School at Abrama was closed and transferred to Chaloda in April 1934.

In addition to the introduction of flyshuttle handlooms as shown above the Weaving Schools in Southern Division and Central Division introduced 18 and 80 dobbies respectively.

76. **Weaving Schools for Agriculturists.**—These are maintained exclusively for agriculturists with a view to train them in hand weaving by improved methods so that they can earn something during their spare time. During the year under review two such schools were maintained, one in the Southern Division and one in the Northern Division :—

(*a*) The Weaving School for Agriculturists in the Southern Division which was continued at Annigeri in the Dharwar District last year owing to the request of local leaders was transferred to Vannur in the Belgaum District in May 1934 where it aroused considerable interest from the beginning. A batch of eight agriculturists was admitted which went through the full course of six months and set up its own looms. Another batch was taken up later which completed its course in April 1935. In addition to giving theoretical and practical training to the agriculturists attending the school, the institution would have, as usual, introduced improved looms amongst other agriculturists of the village but owing to the prevalence of malaria of a virulent type efforts in this direction did not meet with success.

(*b*) The Weaving School for agriculturists in the Northern Division was working at Diva in the Broach District in the beginning of the year, where it introduced nine flyshuttle looms amongst the local agriculturists. It was then transferred to Sukal-Tirth in the same district in September 1934. A batch of 10 agriculturists was trained and seven flyshuttle looms were introduced. At the request of agriculturists the School was continued at the place and was doing good work there.

The work of a Newar Weaving Loom designed by this Department was demonstrated during the year by this school and two such looms were introduced.

The weaving schools for agriculturists have become popular and as a result of the Rural Uplift Movement applications for opening such schools for agriculturists to enable them to adopt hand weaving as a subsidiary occupation are being received from various districts.

77. **Weaving Demonstrations.**—In addition to the weaving schools mentioned above the Department also maintained ten Cotton Weaving Demonstrations during the year under review. They were held at the

following places and they introduced the number of flyshuttle looms mentioned against each :—

Division.	Place.	District.	Number of flyshuttle looms introduced
Southern Division ..	Kadarmandalgi ..	Dharwar ..	13
Do. ..	Byadgi ..	Do. ..	4
Do. ..	Belad Bagewadi ..	Belgaum ..	6
Do. ..	Sirur ..	Bijapur ..	23
Central Division ..	Islampur ..	Satara ..	26
Do. ..	Bhaloni ..	Sholapur ..	7
Do. ..	Valsang ..	Do. ..	9
Do. ..	Barsi ..	Do. ..	5
Do. ..	Kumbharkheda ..	East Khandesh ..	9
Do. ..	Faizpur ..	Do. ..	15
Northern Division ..	Broach ..	Broach ..	..
Do. ..	Isnao ..	Kaira ..	16
Do. ..	Amod ..	Do. ..	..
Do. ..	Keriavi ..	Do. ..	2
Do. ..	Guttal ..	Do. ..	1
Do. ..	Mandvi ..	Surat ..	..
Sind ..	Shikarpur ..	Sukkur ..	17

The Demonstration working at Kadarmandalgi in the Southern Division was closed and transferred to Byadgi in October 1934. The Demonstration at Bhaloni was closed in July 1934 and opened at Valsang from where it was transferred to Barsi in January 1935.

In addition to the introduction of looms shown above the Demonstrations in the Southern Division and Central Division introduced 29 and 59 dobbies respectively.

78. **Cottage Sizing Set Demonstration.**—Four Weaving Schools have been equipped with a Cottage Sizing Set each to train the students on the machine in the preparatory processes of warping and sizing by improved methods.

A separate demonstration equipped with a Sizing Set, Flyshuttle loom and Carpet weaving loom was also maintained in charge of one head master and one assistant master at Kankavli in the Ratnagiri District during the year. It aroused considerable interest at the place from the beginning and introduced 2 sizing machines and 2 mechanical dobbies. It also trained six weavers in designing and 12 persons in Galicha making.

During February and March 1935 the Demonstration participated in the Industrial Exhibition, Poona, and trained about 12 persons in handling the Cottage Sizing Set and the preparation of small carpets. The work of this institution continued to be satisfactory.

79. **Wool Weaving Demonstrations.**—Formerly the Department maintained only one Wool Weaving Demonstration and conducted it only in the Presidency proper. On enquiries made with the Collector of Thar Parkar District in Sind it was found that if a wool weaving demonstration were opened in that district it would serve a very useful purpose. In view of this, one Cotton Weaving Demonstration working at Daharki in the Sukkur District was converted into a Wool Weaving Demonstration for Sind. An account of the work done by the Wool Weaving Demonstrations is given below :—

(*a*) In the beginning of the year one Wool Weaving Demonstration was working at Natepute in the Sholapur District. This Demonstration is equipped with improved carders, spinning wheel and flyshuttle looms and imparts training in wool carding, spinning and weaving by modern methods. The staff in charge of the Demonstration is trained in dyeing by improved methods which has added much to the usefulness of the institution. It was well attended during the year and introduced 7 looms, 5 spinning wheels and 6 carding looms. It participated in the District Agricultural Shows held at Barsi in November 1934 and at Bijapur in January 1935 where it was visited by a good number of Dhangars and others who took great interest in the improved appliances.

(*b*) The Cotton Weaving Demonstration of Daharki (Sind) was converted into a Wool Weaving Demonstration and opened in consultation with the Collector of Thar Parkar, at Gadro, a village in the Thar Parkar District. On a survey of the place it was found that there were about 35 weavers' cottages and the wool weavers carried on their work by crude methods and primitive appliances. The articles turned out by them were coarse and of very ordinary type, the width generally being only 27" and the production came to about 5 to 6 yards a day. The woollen rugs produced by them were plain and of coarse wool. Mr. G. P. Bhaya, B.A., Weaving Assistant, Sind, assembled the wool weavers, explained to them the activities of the Weaving Section of the Department, and impressed on them the importance and usefulness of the adoption by them of improved appliances and modern methods. As a result of this a number of them attended the Demonstration and are now able to weave a blanket having a maximum of 72" width and 10 to 12 yards cloth per day against their former width of 27" and 5 to 6 yards a day production. Use of varnished healds and flyshuttle looms for more production was demonstrated and warps of 40 yards length instead of 20 yards were introduced.

Treddle work and designing were taught which led to the production of attractive blankets of different back grounds and borders. Milling and finishing processes taught in the demonstration enabled the weavers to obtain better prices for their articles than before.

As a result of the above activities, about 25 wool weavers took advantage of the Demonstration and 11 Flyshuttle looms of 72" reed space were introduced.

80. **Dyeing Demonstrations.**—Two Dyeing Demonstrations were maintained during the year under review—one in the Presidency proper and one in Sind.

(*a*) The Dyeing Demonstration which was opened at Bailhongal in February 1934 worked there during the whole year excepting the period from 30th January 1935 to 20th March 1935 when it was moved to Poona to participate in the Industrial Exhibition there.

When the Demonstration was opened at Bailhongal it was observed that there were three dyehouses there two of which were doing well. Only one man was doing mica-printing work while none was found doing calico printing, nor was real silk dyeing executed by any one. The dyehouses produced only two shades, black and chocolate. As regards other shades ready dyed yarn and silk were obtained from Rabkavi and Belgaum. Improvements were therefore taken in hand in this direction by technical advice and practical demonstration to the two dyehouses that came forward to take advantage of the Demonstration. Dyeing of different shades was introduced and in the course of five to six months the local dyehouses stopped importing dyed yarns. Seven weavers were trained in silk dyeing and six were trained in cotton dyeing. Mica and Calico printing were taught to three and four persons respectively. About nine persons attended the Demonstration from outside places like Gokak, Guledgud, Ramdurg, Shirol, Ahir and Rabkavi and received training.

During its stay at Poona the Demonstration did very useful work at the Industrial Exhibition. In addition to local weavers and dyers, weavers from Pathardi, Ahmednagar, Wai, Satara, Hubli, Shahpur, Sholapur and Vaijnath who visited the stalls of the Department received training in dyeing and printing work. 63 persons thus took advantage of the Demonstration. As a result of the practical demonstration in Aerograph printing at the Exhibition at Poona, a local firm of stationery manufacturer has started the spray printing work in artistic style.

As a result of the training given one small dyehouse at Ramdurg and one at Savda came into existence and they are doing well. Various enquiries on technical points were received and attended to by the Demonstrator.

This Demonstration has done very useful work for several years past at the various centres to which it has been sent from time to time.

(*b*) The Dyeing Demonstration maintained in Sind continued its work at Nasarpur till the middle of September 1934 from where it was transferred to Shikarpur in the Sukkur District.

During its stay at Nasarpur the Demonstration trained 25 persons in dyeing by modern methods. As a result of the training imparted 11 weavers started dyeing yarn with fast colours; four have started wool dyeing and two have been dyeing yarn with sulphur colours. Several dyers from outside attended the Demonstration at Nasarpur and most of them have been reported to be doing well. One man from Jacobabad after training started a dyeing works called the Frontier Washing & Dyeing Co. at Jacobabad whereas another from Dadu set up a dyeing & cleaning shop called the National Washing & Dyeing Co.

At Shikarpur the Demonstration aroused considerable interest from the beginning, and trained during the period under review 9 weavers in dyeing with Napthols, Indanthrines, Sulphur, Aniline, Black and Chrome Yellow colours. 6 printers were given instructions in printing in Rapid Fast, Indigosals, Chrome, etc. colours and spray printing.

As a result of the Demonstration four dyehouses started fast colour dyeing of yarns, and one dry cleaning and dyeing and two spray printing shops came into existence.

The Demonstration participated in the Vaishaki Fair at Halani in April 1934 and in the All-India Co-operator's Day Celebrations organised by the Sind Divisional Co-operative Institute where its work was much appreciated. The Demonstration continued to do very useful work during the year under report.

81. **Government Hand Weaving Institute.**—There were 30 students on the roll of the Institute at the end of the year 1933–34—12 in the Second year Advanced Course, 8 in the First year Advanced Course and 10 in the Artisan Course. 29 appeared in the Annual Examination for 1933–34 held in May 1934 of whom 27 passed, many securing distinction.

New students were admitted for the year 1934–35, and 31 were on the roll at the end of the year under review—8 in the Second year Advanced Course, 16 in the First year Advanced Course and 7 in the Artisan Course.

During the year under review the students were taken on an excursion trip to Sholapur, Belgaum, Gokak, Kirloskarwadi etc. to give them an idea of the local hand and power weaving industry. As a new feature in the training imparted to the students jacquard work was introduced during the year and necessary equipment was therefore added to the existing appliances.

Remarks of the Examiners on the work of the students showed that the Institute did good work during 1934–35.

82. **Expenditure.**—The total expenditure incurred during the year under review on the maintenance of this Institute was Rs. 12,332. Receipts were Rs. 44. The nett expenditure therefore was Rs. 12,288.

83. **Improvements in Hand Weaving appliances.**—The Department continued during the year its work in connection with making improvements in hand weaving appliances or methods with a view to enable the weavers to produce marketable articles.

(*a*) The Beam System to which a detailed reference was made in the annual report of this Department for 1929–30 under paragraph 27 continued to be popular. During the year under report 17 beams were introduced at Dharangaon, 4 at Sinnar, 2 each at Islampur, Faizpur and Kankavli.

(*b*) The demonstration of the Mechanical Dobby designed by this Department to which a detailed reference was made in the annual report of this Department for 1931–32 on page 34 under paragraph 65 was continued and one such dobby was introduced each at Bombay, Sholapur, Bagewadi, Barsi and Islampur.

(*c*) The Sari Border and Tape Weaving loom to which a detailed reference was made in the annual report of this Department for 1933–34 under paragraph 70 (*c*) on page 28 soon became popular after its demonstration and five parties sent in their requisition for same.

(*d*) A reference was made in the annual report of this Department for 1933–34 under paragraph 70 (*d*) on page 29 to the experiments conducted by this Department to investigate the possibility of using Magnesium Chloride as a sizing ingredient for handloom weaving. The results of the investigations were published during the year as Bulletin No. 9 of this Department entitled " The Possibility of the use of Magnesium Chloride in the Sizing Process of Handloom Weavers."

(*e*) Several years back this Department designed a Cottage Sizing Set for handlooms. This Set is being demonstrated to hand weavers through a peripatetic demonstration as described elsewhere in this report. Experiments are in hand to make further improvements in the machine with a view to increasing its utility and efficiency.

84. **Miscellaneous Activities of the Weaving Section.**—In addition to running weaving schools and demonstrations, the weaving staff rendered assistance to the public in solving their technical difficulties in hand weaving and allied industries, supplying them estimates for small handloom factories and helping in the establishment of weaving classes by educational institutions etc. Some examples of such work are noted below :—

(1) Sir Ratan Tata Industrial Institute, Bombay, wanted advice regarding Sari Border Looms, durry weaving and galicha making. The necessary assistance was given in the matter.

(2) The David Sassoon Reformatory, Matunga, Bombay, sought advice for organising a weaving class at the Institution. Necessary advice and assistance were given.

(3) Estimates for a small dyeing factory and an aerograph printing factory were prepared during the year and they were supplied to enquirers.

(4) Detailed advice was given to the Poona Anath Vidyarthi Griha, Industrial Section, which desired to start a small textile factory equipped with both power and handlooms.

(5) An estimate for a small power loom factory was supplied to a party in Satara District.

(6) Technical advice was given by the Senior Weaving Assistant with regard to the question of formation of a weavers' society at Malegaon for purchasing power looms on hire purchase system.

85. **Investigations into the condition of Hand weavers.**—The investigation in connection with hand weaving industry detailed on page 30 of last year's report was carried on further during the year under report in the following centres.

Northern Division.—Chikhli, Abrama, Surat and Broach.

Southern Division.—Belgaum, Gadag, Hubli, Dharwar, Lakkundi and Gajendragad.

Central Division.—Dharangaon, Bhingar, Sholapur, Malegaon, Parola, Nasik, Satara, Kharda, Chandor and Dhulia.

Sind.—Nasarpur, Tatta, Lakhi, Lahori and Hala.

Owing to trade depression, severe competition from the mills in the production of staple cloths turned out by handlooms and the absence of better marketing facilities there was no improvement in the condition of the hand weavers from that described in paragraph 72 of the annual report of the Department for 1933–34. Their economic condition continued to be unsatisfactory.

MARKETING OF HANDLOOM PRODUCTS.

86. The Department has for several years past spent considerable sums of money in giving practical demonstrations and training to weavers in the various weaving centres in the use of improved looms and other appliances. A large number of flyshuttle looms etc. and improved and marketable designs have been introduced. No systematic attempt has so far, however, been made in connection with the marketing of handloom products. The industry of late has been doing badly and the Government of India with a view to help it in the direction of marketing have sanctioned a grant of Rs. 5 lakhs a year for 5 years for the purpose. The share of the Bombay Presidency is Rs. 39,500 a year. A scheme prepared by this Department in this connection has been approved by Government.

It provides for the establishment of 5 District Industrial Associations in 5 different Districts viz. (1) Poona, (2) Ahmednagar, (3) Hubli (Dharwar), (4) Ahmedabad and (5) Hyderabad (Sind). These Associations will be registered under the Bombay Co-operative Societies Act.

The principal aims and objects of the Associations will be :—

(*i*) to supply improved appliances on hire purchase system or otherwise,

(*ii*) to supply raw materials at reasonable rates,

(*iii*) to advise weavers and others in regard to the production of improved and easily marketable patterns and designs,

(*iv*) to undertake preparatory and finishing processes and dyeing and printing in connection with handloom industry,

(*v*) to accept on consignment account against partial payment handloom products from weavers and to purchase outright handloom products and sell same etc.

To fulfil these objects each Association will start a shop in the Head Quarters town of the above districts. In the case of Dharwar District the Head Quarters and the Shop of the Association will be in Hubli. Each Association will obtain an advance of capital from the Co-operative Banks for its shop for the purpose of purchasing its stocks and giving advances on account of consignment stock received from the weavers etc. Its recurring expenditure in the matter of staff etc. which will comprise in each case a Manager, Salesman, Accounts clerk and a peon, will be met at the commencement from the Government of India grant.

In determining the percentage of commission to be charged on consignment goods and the rate of profit to be fixed in connection with other goods the aim of the shops will be to make themselves self-supporting as soon as possible.

Each shop will be directly supervised and managed by the Board of Management of the Association concerned under the general control of the Joint Board consisting of the Director of Industries and the Registrar of Co-operative Societies, which will control the whole scheme.

The Marketing Officer (Handloom products) under this Department will organise the various District Industrial Associations and shops under them and will endeavour for the greater sales of the products of handloom industry in the markets of Bombay City and elsewhere. The Textile Designer under this Department will advise the various shops, weavers and weavers' societies in connection with improved and marketable designs.

Fuller details of the above scheme were published as a Supplement to the *Bombay Government Gazette* of 9th May 1935 by the Government of Bombay.

INVESTIGATIONS AND DEMONSTRATIONS COVERING OTHER COTTAGE INDUSTRIES.

87 **Pottery Glazing.**—Demonstrations of applying morden Ceramic colours by new Majolica process to earthen ware as described in paragraph 68 of this Department's report for 1933–34 were continued by the Dyeing Demonstrator in Sind during the year under report. Four Kashigars at Nasarpur and four at Shikarpur received training in pottery glazing. With a view to extend these activities in the Presidency proper experiments were undertaken at Bailhongal in the Belgaum District by the Dyeing Demonstrator. The local earth and sand were tested to ascertain their suitability or otherwise for manufacturing pottery ware and experiments were conducted to glaze the pottery made locally. These experiments were not completed during the year.

88. **Oil industry.**—In paragraph 73 of last year's report a reference was made to a scheme for the development of the village oil industry. This scheme was forwarded to Government for submission to the Imperial Council of Agricultural Research. It is hoped that the Council will find its way to subsidise the scheme in question.

89. **Hemp industry.**—The scheme referred to in paragraph 74 in last year's report prepared by the Industrial Engineer for the progressive development of hemp trade was placed before the Imperial Council of Agricultural Research at its meeting held in July 1934. A reference was received in this Department for additional detailed information which was duly supplied and the scheme is now under the consideration of the Imperial Council.

90. **Bone Manure.**—A reference was made to this industry in paragraph 75 of the last year's report of this Department. The general investigation of the industry was completed. The question of suitable bone crushers was, however, still under consideration during the year, pending the results of experiments with the bone crusher selected by the Imperial Council of Agricultural Research.

91. **Glass Bangle Industry.**—Investigation of glass bangle industry as a Cottage Industry was undertaken during the year. Arrangements were completed for the carrying out of experiments in the matter of production of suitable glass and devising of simple and inexpensive appliances. The actual experimental work will be conducted during the year 1935–36.

CHAPTER IV.

TECHNICAL AND INDUSTRIAL EDUCATION.

92. The method of control of Technical and Industrial Education by this Department as described in the report for 1931–32 remained unaltered.

There were during the year in the Presidency 8 Government aided institutions maintained by public bodies, 21 Government aided private institutions, 10 other institutions not in receipt of a grant but recognised by the Department of Industries and one Government Institution. The last was administered and controlled directly by the Department of Industries. The Department maintained its touch with these institutions through the agency of the Committee of Direction for Technical Education. A complete list of all these institutions is given in Appendix I at the end of the Report.

THE COMMITTEE OF DIRECTION FOR TECHNICAL EDUCATION.

93. During the year under review the Committee of Direction for Technical Education comprised of the same gentlemen as last year except that Mr. M. E. Haskell, Industrial Engineer, took the place of Mr. P. B. Advani during his absence on leave abroad and Mr. B. B. Pradhan, Head of the Electrical Department, V. J. Technical Institute, took the place of Dr. Geo. W. Burley during his absence on leave abroad as Secretary of the Committee.

94. **Inspection.**—The Teaching Inspector of the Committee as usual visited the various aided and recognised schools during the year in discharge of his duties. The Secretary of the Committee also visited some of the schools and inspected their methods of working, accounts, attendance, registers and general management.

95. **Instruction.**—During the year under review all the schools continued to teach the subjects as described in the Department's report for 1933-34 under paragraph 79 with practically no change.

96. **Examinations.**—The Annual Examinations of all the schools were held by the Committee of Direction for Technical Education and 438 candidates who were successful in the Final Examinations last year were awarded Certificates of Proficiency.

97. **Grant-in-aid**—During the year under review the Department sanctioned grant-in-aid to various Technical and Industrial Schools amounting to Rs. 41,147 as shown in Appendix I, on the recommendations of the Committee of Direction for Technical Education.

In addition to the above grant-in-aid, non-recurring equipment grant amounting to Rs. 49-8-0 was made to one school and a pro-forma grant-in-aid of Rs. 1,642 was made to the Model Industrial Home and School, Kandivli.

98. **Recognition.**—During the year under report the Tulsidas Technical Vidyalaya, Daharki, was advised to adopt the syllabus of the Committee in weaving and smithy work and conform to the general conditions of

recognition in the first instance and then renew its application for recognition. The recognition granted by the Committee to the Daroga Abdar and Signallers' Training College, Hyderabad, Sind, was confirmed till the end of March 1934 and arrangements were made to examine the students of the College. The recognition granted to Sir D. M. Petit Industrial School, Ahmednagar, was withdrawn as it was merged into Sir D. M. Petit Industrial School, Sirur, by the Management concerned. Recognition was granted to the Bai Avabai Framjee Petit Parsi Girls Orphanage, Bandra, for its Handloom Weaving and Dyeing and Printing Classes for inspection and examination. The Radio Electric Wireless Classes, Bombay, were recognised for examination purposes only. Applications for recognition from Zarapkar's Tailoring College, Poona, The Harijan Handicrafts Institute, Karachi, Thana District Local Board's Weaving School at Khardi and Carpentry Classes at Dahanu were under consideration at the end of the year.

99. **Miscellaneous.**—Technical advice was given to various interested parties for small industrial classes for various courses. Two examples of this work are given below :—

A party was furnished with a scheme for a handloom weaving class of 20 boys.

The District School Board, Kanara, was supplied with a detailed scheme with syllabus and equipment for introducing hand weaving as vocational training in primary schools.

100. **Expenditure.**—A grant-in-aid of Rs. 14,766-2-0 was made to the Committee of Direction for Technical Education to meet its expenditure during the year under review as shown below :—

	Rs.	a.	p.
(1) Establishment charges	3,990	0	0
(2) Inspection charges	3,828	0	0
(3) Examination charges	6,948	2	0
	14,766	2	0

A sum of Rs. 539 was received as examination fees and credited to Government.

VICTORIA JUBILEE TECHNICAL INSTITUTE, BOMBAY.

101. This is the premier Technical Institute in the Presidency and is in a class by itself. The standard and courses of instruction were the same as described in the last year's report under paragraph 87. The Institute continued to be managed by a Board of Trustees of which the Chairman and seven members including the Director of Industries are nominated by Government.

Candidates from different parts of India apply for admission and it has been found that there is a continuously increasing demand for admission to the Electrical Engineering Course. At the Entrance Examination for admission in June 1934, 450 candidates against 402 of previous year applied for admission; of these 189 were admitted, of whom 122 were from the Bombay Presidency.

The results of the Annual Examination of the Institute were satisfactory. 37 out of 39 passed in Mechanical Engineering, 49 out of 51 in Electrical Engineering, 38 out of 38 in Textile Manufacture, 15 out of 15 in Technical and Applied Chemistry and 17 out of 17 in Sanitary Engineering and Plumbing.

Eighty-three students of the Institute appeared in the local Examinations of the City and Guilds Institute of London out of which 58 passed against 53 out of 99 last year.

102. **Miscellaneous Classes.**—In addition to the regular Courses in the subjects mentioned above, apprentice courses as usual were held once a week for instruction in Elementary Mechanical Engineering and Electrical Engineering and Cotton Spinning and Weaving. Electric Wiremen's Classes I and II corresponding to the syllabus of Government Examinations were also conducted during the year. All these classes were well attended by a large number of apprentices engaged in different trades.

103. **Radio Classes.**—In view of the present day advancement of wireless and Radio Communications evening classes extending over a period of 4½ months and held bi-weekly for training of students in the Elementary principles of Radio Communication and maintenance and repairs of radio instruments were organised in the Institute in November 1934. A large number of students applied for admission but only 53 could be admitted.

104. **Expenditure.**—The total expenditure incurred by the Institute during the year was about Rs. 2,44,550 against which a Government grant of Rs. 1,22,000 was made to the Institute by the Department of Industries against a grant of Rs. 1,19,000 of the previous year.

GOVERNMENT TECHNICAL INSTITUTION CONTROLLED BY THE DEPARTMENT OF INDUSTRIES.

105. During the year under report, in addition to the Government Hand Weaving Institute, Poona, referred to in Chapter III, there was one technical Institution in the Bombay Presidency maintained by Government and administered by the Department of Industries, viz. the R. C. Technical Institute, Ahmedabad.

106. **R. C. Technical Institute.**—While the standard of instruction attained in this institution is lower than that at the Victoria Jubilee Technical Institute, Bombay, it is higher than that at the other technical schools in the

Presidency. Instruction covering a period of 3 years is provided in (1) Cotton spinning, (2) Cotton weaving and (3) Mechanical Engineering. During the year under review 140 applications were received for admission to the Institute. 28 candidates were granted direct admission as they possessed higher qualifications than laid down, the remaining candidates were required to appear in the Entrance Examination of the Institute. The total number of candidates admitted was 68 out of which 20 were admitted in Cotton Spinning Course, 21 to the Cotton Weaving Course and 27 to the Mechanical Engineering Course. The total number of students in the Institute during the year under report was 142.

Various scholarships founded by the public were as usual granted to suitable students. In addition to these 6 Government scholarships of Rs. 10 per month each were awarded to deserving students.

The Annual Examination for 1933-34 of all the classes of the Institute was held by the Committee of Direction for Technical Education, Bombay, in April 1934 and out of 131 students who appeared in the Examination 126 passed bringing the result to 96 per cent. against 86 per cent. of the previous year.

Twenty-five students appeared in the various grades of the City and Guilds of London Institute Examinations in different subjects and only 10 passed.

Students were taken on an excursion tour to industrial centres with a view to acquaint them with the working of various factories.

The prize distribution and Social Gathering of the Institute were held in January 1935 when Seth Kastoorbhai Lalbhai, a leading local Millowner, presided and many millowners, officers and distinguished citizens were present.

107. **Expenditure.**—The total expenditure incurred during the year was Rs. 31,767. Receipts were Rs. 3,468-2-0. Therefore the net expenditure was Rs. 28,298-14-0.

SCHOLARSHIPS.

108. The Department of Industries annually awards a number of scholarships tenable at the Victoria Jubilee Technical Institute, Bombay, R. C. Technical Institute, Ahmedabad, F. S. Parekh Technical Institute, Surat, and the Government Hand Weaving Institute, Poona. A number of scholarships is also given to the students of the peripatetic weaving schools in the Presidency and Sind reviewed in Chapter III.

In addition to the above, ordinarily three scholarships are awarded for research in Technical Chemistry and two for practical experience in Electrical Engineering.

109. **Government Special Scholarships tenable at the Victoria Jubilee Technical Institute, Bombay.**—These scholarships are

intended only for Intermediate and Backward Classes and Muhammadan candidates. The total number of scholarships available each year for award is 11. During the year under review the Department received 25 applications out of which 19 were from new entrants and 6 from the old students of the Institute. Out of these 25 applications 19 were from Intermediate Hindus and 6 from Muhammadans.

Intermediate Classes.—One student in Electrical Engineering, one in Mechanical Engineering, one in Sanitary Engineering and Plumbing and two in Textile Manufacture Course received the scholarships for this class.

Backward Classes.—There was no application received from this group during the year under review.

Muhammadans.—One in Mechanical Engineering and two in Sanitary Engineering and Plumbing received the scholarships. One old student in Electrical Engineering was awarded a vacant scholarship for one year only.

110. **Technical Chemistry scholarships.**—As a measure of retrenchment in expenditure only two scholarships for research work in Technical Chemistry were sanctioned by Government; the third scholarship was held in abeyance. One of these scholarships was awarded to a lady student who joined the Indian Institute of Science, Bangalore. The other scholar joined the Royal Institute of Science, Bombay. The scholarships of the two candidates at the Royal Institute of Science, Bombay, which were awarded last year were renewed for one year more during the year under report.

111. **Scholarships in Electrical Engineering.**—In this branch of training only one scholarship for practical training in Electrical Engineering was awarded during the year under report. The other scholarship was held in abeyance as a measure of retrenchment. The selected candidate joined the G. I. P. Railway workshop and his work during the year was satisfactory.

112. **State technical Scholarships tenable abroad.**—Owing to financial stringency no scholarship for technical training tenable abroad was awarded during the year under report. The scholar who was awarded a special scholarship in 1933–34 was still under training during the year under report.

MISCELLANEOUS WORK.

113. **Facilities for practical training.**—As usual a number of requests was received from students for advice regarding facilities for training in Technical Institutions both in foreign countries and in India. Students who wanted information about facilities for training in foreign countries were referred to the University Information Bureau. Necessary

advice about technical courses in institutions in India was given by this Department in a number of cases.

114. **Industrial and Scientific Research, 1934-35.**—A summary of the progress of scientific and industrial research during 1934-35 was sent to the Government of India for inclusion in the Annual Report of the Committee of the Privy Council for Scientific and Industrial Research, London. The material for the summary was furnished by some of the educational and scientific institutions in this Presidency.

CHAPTER V.

FISHERIES.

115. **Departmental Launches.**—In last year's report it was stated that a launch had been borrowed from the Royal Indian Marine and the necessary alterations had been made on it in order to make it suitable as a fish carrier. This launch worked as a fish carrier during the fishing season of that year and was returned to the authorities concerned at the commencement of the year under report. As stated in the last year's report the working of the borrowed launch proved a success. This Department, accordingly, placed an order for the construction of 2 motor launches with Messrs. Alcock Ashdown & Co. Ltd., Bombay, during the year. The construction of the launches was supervised by the Principal Engineer and Ship Surveyor to Government, Indian Mercantile Marine Department, to whom the thanks of this Department are due for his interest and assistance. The dimensions of the 2 launches are—length 35 feet, breadth 10 feet and depth 4 feet 9 inches. One of the launches is equipped with a 28·5 B.H.P. Gardner crude oil engine and the other with a 38 B.H.P. Ruston Lister crude oil engine. They attain speeds of 7 and 8 knots per hour respectively. The launches were christened " Lady Sykes " and " Sir Frederick Sykes " and were put into commission in September and October 1934 respectively.

116. It was originally intended that the 2 Government launches would be worked directly by this Department and in the budget a provision was accordingly made for the full cost of the fuel oil and the staff etc. required for the working of the launches. It was, however, hoped from the very commencement that it might be possible to come to some arrangement with fishermen under which the launches would be worked by them instead of by this Department direct, as it was held that the former arrangement was likely to secure the achievement of the objects in view more quickly than the latter arrangement. The Danda fishermen, as a result of the working of the launch borrowed from the Royal Indian Marine, were convinced of the advantages of the scheme. They accordingly applied for the purchase of one of the launches on instalment basis. With

Government approval the launch " Sir Frederick Sykes " was accordingly sold to Messrs. Motiram Govind Patil and Shankar Govind Bhika of Danda. Under the terms of the agreement the purchasers agreed to bear all the expenditure of the operation of this launch. They have so far carried out all the terms of the agreement and paid regularly the instalments due. The second launch " Lady Sykes " was worked in co-operation with the same fishermen. As regards the recurring expenditure of this launch they agreed to pay the cost of fuel and lubricating oil and the pay of the mechanic. This arrangement, which has worked satisfactorily, has saved this Department a considerable amount of recurring expenditure and has in a direct way shown to the fishermen that the adoption by them of motor launches will be of great advantage to them. While the launches have been operated directly by the above-mentioned fishermen, the supervisory control over the same remained with the Fisheries Officer. The Fisheries Officer has advised Messrs. Patil and Bhika from time to time as to the fishing fields in which the launches should operate and this Department has attended to any mechanical difficulties in the matter of the running of the engines of the launches etc. The fishermen supplied to this Department all the necessary statistics and information in regard to the working of the launches.

117. The launches were operated for the first two months of the fishing season in the vicinity of Bassein and adjacent places. It was soon realised that the working of the launches in the Bassein area would not exactly serve the main purpose of the experiment, which was to demonstrate to the fishermen the possibility of increasing the City's supply of fish by venturing out to fishing fields other than the usual ones. Moreover, there was not much use working the launches at Bassein from where most of the fish was already being transported to Bombay by sailing craft and rail.

Arrangements were accordingly made that the launches should go out to other fishing sites. The first such trip was performed in November when the launch " Sir Frederick Sykes " went to Jaigad and returned with mackerel. Both the " Sir Frederick Sykes " and the " Lady Sykes " subsequently made alternate trips to Jaigad and other ports close by and on every occasion they returned with an ample catch of mackerel and sardines. Both these species of fish are of very great food value. These two varieties of fish are usually scarce in Bombay waters and whatever small amounts found their way into the local markets previously were due not so much to the enterprise of the fishermen, but to the fact that the fishes had somehow strayed from their usual haunts. The bulk of the catch of such fish, hitherto, usually found its way to the fish curing yard where it was cured and salted, and exported a long time later for sale in Bombay and other places. The launches have demonstrated the feasibility of bringing fish in a fresh condition to Bombay where the catch

finds a ready sale and meets a real demand. The launches have brought large and rich fishing fields within comparatively easy reach of Bombay.

When the launches operated at Jaigad and Ratnagiri, fishermen from neighbouring sites flocked to these places to sell their catch to the launches, as they had derived better prices from this source than they would have done if they had sold their fish to fish curers. They obtained not only ready cash for their products, but were also saved the bother and inconvenience of carting the fish to the fish curing yards, buying salt and curing their fish with the ultimate object of exporting it to the interior and getting a price which was not as attractive.

The " Lady Sykes " performed 24, 19, 12, 5, 9 and 9 trips in October, November, December, January, February and March respectively and the " Sir Frederick Sykes " 5, 23, 12, 4, 4 and 9 trips respectively. The total quantity of fish brought by the " Lady Sykes " and " Sir Frederick Sykes" was 91,723 lbs. and 74,402 lbs. respectively. This would have been larger if the launches had not worked at the commencement in the Bassein area. The fishing season terminated early in the year under report, the main reason being the onset of bad and squally weather, which proved most unfavourable for sea fishing during the months of March, April and May with the result that there was a falling off in the quantity of fish landed. Another factor contributing to the relative paucity of the catch brought to Bombay by the launches was that when they started working in the Ratnagiri area it was the beginning of December. This is almost towards the end of the peak period, which consists of the 4 months from September to December, both months inclusive.

118. **Benefit of Motor Boats.**—The money realised from the sale of fish brought by the launches was encouraging enough to cause several inquiries to be addressed to this Department, and to stimulate owners of ordinary sail boats to put out to Jaigad for fish. The working of the launches shows that in the Ratnagiri District, where a number of fish curing yards are situated, there is considerable fish available which could be brought to Bombay, but which till then, owing to lack of speedy methods of transport, found its way to the fish curing yards and not to consuming centres of fish like Bombay.

The operation of the launches has further shown that there is a great future before the fishing industry with the institution of a regular launch carrier service between Bombay and the fishing fields to its south in the Ratnagiri District to import fish into Bombay. The route skirts the coast and the weather too on this side is calm.

119. Evidence of the appreciation of the utility of motor transport was afforded by the example of Mr. Hasanally Ebrahim, a fish merchant, who, encouraged by the success of the working of the launches of this Department, placed an order for a launch with carpenters at Satpati.

This launch which is named " Hydari " is fitted with a 25 B.H.P. Modag Krupp Diesel Engine. The boat is 41 feet long, 10 feet beam, and has a draught when loaded of 3 feet. The speed attained is 6 knots per hour. This launch operated in the vicinity of the Kathiawar coast. Its operation extended from Madhwar to Bombay, a distance of 150 miles. The value of the work done by Mr. Hasanally's launch is analogous in every respect to that done by the launches of this Department in the waters to the south of Bombay. The results obtained in both areas have proved that a considerable quantity of good fish is available which can find a ready market in Bombay.

120. The financial success of the working of the launches of the Department and that of Mr. Hasanally Ebrahim came to the knowledge of fishermen both in Bombay and the Ratnagiri coast. As a result of this, the Department received at the end of the year under report a number of applications from fishermen requesting that launches may be sold to them on instalment basis. The applications were under consideration at the close of the year.

121. **Cold Storage Facilities.**—In addition to the work which has been done by the launches of this Department and that of Mr. Hasanally Ebrahim in the matter of increased supply of fresh fish in the City other steps in the same direction are those in connection with the provision of cold storage facilities.

More than one concern in Bombay have set up up-to-date refrigerating plants for the storage of fish so that it might remain in a fit state of consumption throughout the year. The most important of these concerns is the Wild Game and Seafood Co. which has an up-to-date cold storage freezing plant in the Fort. This company, in addition to its cold storage in Bombay, has erected plants at Malvan and Veraval for freezing fish. In this venture it had the advice and co-operation of the Fisheries Officer. The firm imported during the year fresh fish in insulated boxes from Malvan and Veraval by the Bombay Steam Navigation Company's steamers to the extent of 1,54,560 lbs. as compared to 1,66,125 lbs. brought to the City by the launches of this Department.

122. **Training of Apprentices.**—Five youths of fishermen's community were under training during the year as apprentices on the launches of this Department. Two had already been in training the previous year. The five apprentices made remarkable progress and their work was satisfactory in every respect.

Two apprentices worked during the last monsoon in Messrs. Macbeth's workshop. One of them also worked on the Port Trust launch " Leda " for three months. One of the two old apprentices was and still continues to be in the sole charge of the launch " Shelmari ". His work has been very satisfactory. Two of the five apprentices are due to appear for the mechanics' certificate examination shortly.

123. **Pearl Oyster Fisheries in the Thana-Belapur creek.**—The year under review witnessed the enforcement of new regulations to govern the conditions on which pearl oysters were leased out at Thana. The new regulations were adopted by the Collector at the suggestion of this Department in respect of the oyster fisheries in the Thana-Belapur creek.

Recently the Collector of Thana in a communication to this Department stated that no one was coming forward to bid at the auction for the disposal of the right to exploit the pearl oyster beds in the Thana-Belapur creek. Prospective bidders asserted that no pearl oysters were available in the creek. The matter was investigated by the Fisheries Officer, who gave the definite opinion that pearl oysters existed on the beds. The Collector acting on the information again put up the beds for auction, which yielded a sum of Rs. 9,000 for the right to work the beds for 5 years.

124. **Oyster Clam Fisheries.**—A bacteriological examination of samples of oysters and clams from the Mahim Creek was carried out at the instance of this Department at the Haffkine Institute, Bombay. The samples were collected and supplied by the Fisheries Officer to the Institute. The examination has revealed that most of the material from the Mahim Creek is contaminated. It would seem that such material is unfit for human consumption ; but before a recommendation is made to Government for the issue of an order banning the sale of oysters obtained from the beds the Director of Public Health, Poona, has been consulted. His decision is awaited.

125. **Development of Inland Pisciculture.**—The possibility of developing inland pisciculture in this Presidency was examined by the Fisheries Officer during the year. The Department issued a questionnaire to Municipal and Local Bodies throughout the Presidency including Sind, inviting suggestions on the feasibility of developing inland fisheries wherever sheets of fresh water existed. These bodies were further asked to inform this Department of the extent to which inland fisheries had already worked. A report based on the replies obtained was compiled and submitted to Government. The scheme prepared in the light of these replies had, however, to be dropped owing to financial stringency. An experiment on a modest scale to test the suitability of " Gourami " to local waters has nevertheless been sanctioned by Government. The experiment is being conducted in collaboration with the Bandra Municipality who have placed a tank, under their jurisdiction, situated on Ghodbunder Road, at the disposal of this Department for a period of seven years. The tank is overrun with weeds and swarms with predaceous fish, both of which are being removed to make it suitable for the purposes of the experiment.

126. **Fish Curing Yards.**—The question of the transfer of fish curing yards from the Salt Department of the Government of India to

this Department was investigated during the year. The Fisheries Officer visited the various fish curing yards in this and Madras Presidencies. A report embodying his observations and the Director's recommendations was forwarded to Government and is at present under their consideration.

127. **Trade in Fish Maws.**—Apart from stimulating the local marine fisheries, the Department of Industries also helped the fishermen to develop their trade abroad. With this end in view, the Department advised the fishermen of Danda to collect fish maws which are exported to foreign countries for the manufacture of isinglass. A successful effort in this direction has already been made in respect of the sale of fish maws to buyers in London. It had, hitherto, been the practice of fishermen to dispose of their accumulation of fish maws to middlemen, whose intervention reduced the margin of profit. Contact between the local fishermen and the foreign purchasers of fish maws was established through this Department. As an experimental measure, a small consignment was shipped to England which was duly received and paid for. The fishermen are now concentrating their efforts on securing all the available supplies of fish maws in their villages and developing this trade as a subsidiary occupation.

128. **Fisheries Information Bureau.**—Government were pleased to sanction during the year the organisation of a Fisheries Information Bureau in this office. A grant of Rs. 700 for the year 1934-35 was sanctioned for this purpose and a sum of Rs. 200 per year was also sanctioned for subsequent years.

Efforts were made during the year to collect statistics about the supply of fish and other information relating to fish trade and industry with a view to the same being made available to the public.

Apart from the supply of information to interested parties, the Fisheries Officer dealt with a number of enquiries in connection with the building of launches by fishermen and fish trade generally. He also assisted the Zoological Departments of two Colleges in this Presidency by the supply and identification of fish material.

CHAPTER VI.

WEIGHTS AND MEASURES SECTION.

129. During the year under report Government decided that the Bombay Weights and Measures Act, 1932, should be enforced with effect from 1st March 1935 in Bombay City and the following districts :—Broach including Panch Mahals, Surat, Thana, Bombay Suburban District, Ahmednagar, Poona, Satara, Belgaum, Karachi and Sukkur. Detailed specifications were accordingly prepared for the necessary equipment for the Weights and Measures Laboratory in Bombay and for the use of the Bombay City and District Inspectors of Weights and Measures. Orders

were placed with His Majesty's Mint in Bombay for Primary, Secondary and Working Standards of Weights and Measures. Orders were also placed for Balances and Scale Beams with a British firm through the High Commissioner for India, London, during the time that the Director was on leave in London. The total value of the equipment ordered during the year was about Rs. 97,925. Owing to the delay which took place in connection with the delivery of the equipment it became necessary to approach Government to postpone the date of enforcement of the Act and Government were pleased to direct that the Act should be enforced in the above districts from 1st August 1935. The Warden of Weights and Measures was appointed with effect from 1st March 1935 and all the preliminary arrangements were made for setting up the equipment when received and for the training of the Inspectors when appointed. This and other matters connected with the Weights and Measures Section involved a very considerable amount of work.

A reference was made in the last year's report that the Department had submitted to Government draft rules to be framed under the Bombay Weights and Measures Act, 1932. These rules with the necessary modifications were finally adopted by Government during the year under review and were published. A number of Press Notes were issued by Government during the year for the information of the public in connection with the Bombay Weights and Measures Act, 1932, and its enforcement in the various districts.

Arrangements were well under way for the effective enforcement of the Act in the above districts from the date finally fixed by Government and from the 1st of March 1936 in the rest of the Presidency.

CHAPTER VII.

WORK OF THE DEPARTMENT—MISCELLANEOUS.

130. In the previous chapters the work of the Department in connection with organised industries, cottage industries, Technical and Industrial Education, Fisheries and Weights and Measures has been dealt with. The Department does quite an appreciable amount of work which cannot be properly included under any of the above heads, and yet is of sufficient importance to be noted in the Annual Report. Work of this nature is, therefore, referred to in the present chapter.

WORK FOR OTHER DEPARTMENTS OF GOVERNMENT.

131. (*a*) At the request of the Director General of Commercial Intelligence and Statistics, Calcutta, information was collected by the Department regarding the names of oil mills, kinds of seeds crushed, etc. required in connection with the scheme for the compilation of statistics of production of certain vegetable oils in India which the Director General

of Commercial Intelligence and Statistics was proposing to prepare. In a similar manner information about paint factories was supplied to the Director General of Commercial Intelligence and Statistics to enable him to compile the statistics of production of paints in India.

(*b*) At the request of the Director of Contracts, Army Head Quarters, Simla, a comprehensive list showing the articles under separate heads, e.g. Textiles, Boots and Shoes, etc. which are being manufactured on a commercial basis in the Bombay Presidency together with the names and addresses of manufacturers was compiled and sent to that officer by the Department.

(*c*) The Commissioner of Excise requested for a report on the Boiler Plant of and power generation by the Distillery at Nasik. The Industrial Engineer visited the Distillery and after careful investigation a detailed report was prepared and forwarded to the Excise Commissioner on the existing Boiler Plant, and reorganisation of and improvements in and additions to the present Boiler Plant, and the cost of past and future generation of power by the Distillery. During the visit to Nasik the questions of measuring the steam consumption for process work and utilising spent Mowrah flowers as boiler fuel were also investigated. The recommendations of the Industrial Engineer for installation of steam meters and re-arrangement of boiler furnaces etc. were adopted. Very satisfactory results are now being obtained and it is expected that several thousands of rupees per annum will be saved to the Distillery by the reduction in the consumption of coal as the spent Mowrah flowers are now being used as fuel together with coal.

(*d*) The Commissioner of Excise also referred to this Department the question of utilising waste Co_2 from the distillation vats of the Distillery. The Industrial Engineer visited the Distillery and after careful investigation prepared a detailed report on the possibilities of making dry ice at the Distillery from waste Co_2 or selling the waste Co_2 to any industrialist on a royalty basis. The report was sent to the Commissioner of Excise. It is hoped that in the near future either the Distillery will manufacture dry ice or some industrialists will take over this manufacture as the availability of dry ice at a reasonable price will assist considerably the development of fresh fruit, fish and milk trades of this Presidency.

(*e*) The work of carrying out a surprise check of the articles in stock at the office of the Superintendent, Government Printing and Stationery, Bombay, with the sealed samples was entrusted to this Department—*vide* Government Resolution, Revenue Department, No. 7662, dated the 30th April 1930. This work was carried out for the fourth time during the year under review. The articles in stock were checked with the sealed samples received in this office from the Superintendent, Government Printing and Stationery, Bombay, and a detailed report was submitted to Government.

(*f*) The Superintendent, Government Printing and Stationery, Bombay, forwarded to this office from time to time samples of such articles as cloth, ink, typewriter oil, turbans, candles, etc. for test and report.

ACTS, LEGISLATIVE MEASURES ETC.

132. The Department was requested to give its opinion on the following measures :—

The Mechanical Lighters (Excise Duty) Bill.

Bill to regulate the money lending business.

Amendment of Indian Patents and Designs Act, 1911, to prevent the piracy of registered designs.

133. The rules for the Bombay Weights and Measures Act, 1932, referred to in last year's report were finally approved by Government and were published for the information of the general public, traders and manufacturers.

MISCELLANEOUS ACTIVITIES OF THE DIRECTOR OF INDUSTRIES.

134. During the year under review for the period during which I held charge of the post of Director of Industries I was a member of the following bodies :—

The Bombay Legislative Council.

The Board of Trustees of the Prince of Wales Museum, Bombay.

Board of Management of the Victoria Jubilee Technical Institute.

Committee of Direction for Technical Education.

Bombay Smoke Nuisances Commission.

Bombay University Board of Studies in Engineering.

Bombay University Senate.

University Board of Chemical Technology.

Committee appointed by the Syndicate of the Bombay University for the triennial inspection of the College of Engineering, Poona.

Member of the Board of the Model Industrial Home and School, Kandivli.

During my absence the Industrial Engineer who held the charge of the office of the Director was a member of the Board of Trustees of Prince of Wales Museum and the Committee of Direction for Technical Education.

CONFERENCES, COMMITTEES, ETC.

135. The sixth conference of Ministers and Directors of Industries was held in July 1934 at Simla. The Honourable Minister in charge of

Industries and the In-Charge Director of Industries attended the Conference at which subjects pertaining to the Development of the Handloom Industry, Sericulture Industry and Co-ordination of Industrial Research were discussed.

EXHIBITIONS.

136. It is the policy of this Department to participate in the Presidency and District Industrial and Agricultural Shows by deputing its weaving staff with a view to demonstrate improved methods in hand weaving and sizing, dyeing and printing, carding and spinning of wool and weaving of blankets, and weaving of carpets from cotton yarn waste, as may be necessary at a particular show or exhibition.

The principal shows in which the Department participated during the year were Vaishakhi Fair at Halani, Sind, All-India Co-operators' Day Celebration, Sind, Pithoro Fair, Sind, Barsi Agricultural Show, Bijapur Agricultural Show, Shukal-Tirth Fair and Poona Industrial Exhibition.

The Department also brought to the notice of commercial bodies and others exhibitions due to be held in other parts of India and abroad.

VILLAGE IMPROVEMENT SCHEME.

137. In addition to the above the Department participated in the activities relating to village improvement work. Some examples of this type of work are—

(*a*) The Dyeing Demonstrator, Bailhongal, attended a number of meetings of the Village Improvement Committee.

(*b*) The Weaving Demonstrator at Islampur was deputed to Satara twice to demonstrate weaving of shirting, khadi and cot tape at the Rural Uplift Propaganda Classes organised by the Satara Village Improvement Committee. He also trained the candidates of Rural Uplift Refresher Class at Islampur in producing shirting cloth and cot tape.

LIBRARY.

138. A library is attached to the Department which contains over 4,000 books, publications, directories, etc. The library is being gradually added to so as to increase its usefulness to the Department and the public interested in industries. Some important technical journals are also regularly received in the Department. The library is open for reference to the general public at any time during office hours on working days. It is gratifying to note that members of the public are taking full advantage of this arrangement.

CHAPTER VIII.

CONCLUSION.

STAFF.

139. I held the post of Director of Industries from 1st April to 9th May and from 21st November 1934 to 31st March 1935. From the 10th of May to 20th November 1934 I was on leave. During that period Mr. M. E. Haskell held charge of the office of Director of Industries in addition to the post of Industrial Engineer. Dr. M. S. Patel continued to work as Industrial Chemist. Dr. S. B. Setna continued to work as Fisheries Officer. Mr. B. Tayabali worked as Principal of the R. C. Technical Institute, Ahmedabad, during the year under report. Mr. T. V. Lalvani took charge of the post of Warden of Weights and Measures newly created from 1st March 1935. The other staff of the Department was the same as mentioned in the report of 1929-30 except for the addition of 1 clerk for the Weights and Measures Section who was appointed towards the end of the year.

TOURING.

140. Owing to my having been on leave out of India and preoccupation with the organisation of the Weights and Measures Section, I was unable to be out of the headquarters except for short visits to Poona and Alibag. The Industrial Chemist was out of headquarters for 49 days. He visited Belgaum, Kumta, Honavar, Sirsi, Kankavli, Ratnagiri, Poona, Nadiad, Ahmedabad, Bassein, Gokak, Virar, Thana and Barsi. His visits to these places were in connection with cashewnut, chrome ore, curing of tobacco, mango pulp, paper, vinegar, potassium carbonate, bauxite ore, soap and peppermint oil industries etc. The Industrial Engineer was out of headquarters for 37 days and visited Nasik, Bagewadi, Gokak, Vanur, Bailhongal, Belgaum, Gadag, Talegaon, Bijapur, Alipore, Patna, Calcutta, Simla. His tours were in connection with the practical demonstrations organised for the benefit of the gold thread industry, investigations regarding bone crushing, glass and oil industries, engineering problems of the Nasik Distillery and attendance at the Industries Conference.

VISITS TO WORKS.

141. The Director, the Industrial Engineer and the Industrial Chemist visited a number of concerns in connection with investigations in hand and rendering of technical advice etc.

EXPENDITURE.

142. The expenditure incurred by the Department of Industries during the financial year 1933-34 and the three preceding years was as follows :—

				Rs.
1931-32	..	..	..	3,67,019
1932-33	..	..	..	3,37,069
1933-34	..	..	..	3,53,368
1934-35	..	..	..	3,43,564

In addition to the figure shown for 1934-35 a sum of Rs. 97,925 was spent during the year for the purchase of primary, secondary and working standards and scale beams for the Weights and Measures Section. Out of Rs. 97,925 an expenditure of Rs. 41,213 was incurred in England for the purchase of scale beams and balances.

The receipts during the year were Rs. 11,424. The total net expenditure of the Department during the year was therefore Rs. 3,32,140 excluding the Weights and Measures Section.

CONCLUSION.

143. The work during the year increased very considerably largely owing to the proposed enforcement of the Weights and Measures Act, 1932. As there was no increase in the staff, the existing staff had to work at great pressure. I am glad to record that the entire staff both technical and clerical worked well and efficiently throughout the year.

P. B. ADVANI,
Director of Industries.

APPENDIX I.

RECOGNISED TECHNICAL AND INDUSTRIAL SCHOOLS IN THE BOMBAY PRESIDENCY DURING THE YEAR 1934-35.

	Grants paid in 1934-35.	
	Grant-in-aid (Recurring).	Equipment grant (Non-recurring).
	Rs.	Rs.
(1) Schools run by Local Bodies receiving grants-in-aid from the Department of Industries.		
1. Municipal Technical School, Jacobabad	1,790	....
2. F. S. Parekh Technical Institute, Surat	6,000	....
3. V. J. Municipal Technical School, Poona	1,949	....
4. Local Board Industrial School, Satara	843	....
5. Robertson School of Industry, Pandharpur	830	....
6. King Edward VII Technical School, Dhulia	3,253	....
7. School of Industry, Ratnagiri	6,915	....
8. Municipal Technical School, Sholapur	1,248	....
(2) Schools managed by private bodies receiving grants-in-aid from the Department of Industries.		
9. V. J. Technical Institute, Sukkur	1,911	....
10. Nadiad Industrial Institute, Nadiad	855	....
11. Salvation Army Boys' Weaving School, Anand ..	495	....
12. I. P. Mission Industrial School, Borsad	1,097	....
13. Vocational Training School, Ankleshwar	795	49 8 0
14. Mahajan Home Industrial School, Surat	660	....
15. A. R. Sonawalla Industrial School, Bordi	1,050	....
16. C. B. Mission Boys' Industrial School, Palghar ..	394	....
17. Empson Workshop and Industrial School, Poona ..	1,031	....
18. Sir D. M. Petit Industrial School, Sirur	690	....
19. S. P. G. Mission Industrial School, Ahmednagar ..	1,731	....
*20. Sir D. M. Petit Industrial School, Ahmednagar ..	....	....
21. Salvation Army Boys' Industrial School, Ahmednagar ..	480	....
22. St. Barnabas' Industrial School, Manmad	1,071	....
23. K. E. S. Topiwalla Industrial School, Alibag ..	1,469	....
24. American Mission School for the Blind, Bombay ..	999	....
25. D. C. Mission Industrial School, Bombay	207	....
26. Textile Technical School, Parel, Bombay	1,218	....
27. D. N. Poor Boys' Seminary Industrial School, Bombay ..	880	....
28. American Weslyan Mission Industrial School, Sanjan ..	336	....
†29. S. A. Willingdon Boys' Home, Bombay	950	....
	41,147	49 8 0

* This school merged into school No. 18, viz. Sir D. M. Petit Industrial School, Sirur, during the year; hence no grant-in-aid was made to it for 1934-35.

† The grant-in-aid to this school is debitable to XXI—Education (Reserved).

(3) Recognised Schools.

(a) Schools managed by Local Bodies not receiving grant-in-aid but recognised by the Department of Industries.

Note.—There was no such school during the year.

(b) Schools managed by private bodies not receiving grant-in-aid but recognised by the Department of Industries.

30. Jadhav's College of Tailoring and Cutting, Poona.
31. Pandharpur Electric Supply Company's Wiremen's Class, Pandharpur.
*32. Bai Avabai Framji Petit Parsi Girls Orphanage, Hand Weaving and Dyeing and Printing Classes, Bandra.
†33. The Radio-Electric, Bombay's Wireless Classes.

(c) Government Reformatory and Settlement Schools.

34. Yeravda Reformatory School, Yeravda.
35. David Sassoon Industrial and Reformatory School, Bombay.
36. Industrial Settlement School, Sholapur.
37. Industrial Settlement School, Bijapur.
38. Industrial Settlement School, Hubli.
39. Industrial Settlement School, Gadag.

(4) Government Technical Schools directly controlled by the Director of Industries, Bombay.

40. R. C. Technical Institute, Ahmedabad.

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* Recognition granted during the year 1934-35 for Inspection and Examination purposes.

† Recognition granted during the year 1934-35 for Examination purposes only for the period ending 31st March 1936 in the first instance.

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BOMBAY : PRINTED AT THE GOVERNMENT CENTRAL PRESS.